Remarks

These Remarks are in reply to the Office Action mailed September 23, 2002. Claims 1-30, 47-50, 83 and 84 were pending in the Application prior to the outstanding Office Action. In the Office Action, the Examiner rejected claims 1-30, 47-50, 83 and 84 under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,675,799 to Doktor in view of U.S. Patent No. 6,088,659 to Kelley. The present Response amends independent claims 1, 47, 48, 83 and 84 to add a definition for the term 'entity'.

Applicants' representative would like to thank the Examiner for the telephone interview conducted on February 11, 2003. During the telephone interview, Applicants' representative and the Examiner discussed adding a definition for the term 'entity' to further distinguish the present invention from the applied references. The Examiner indicated that the suggested definition for 'entity' makes the claims more specific, but would require him to perform a further search. The Examiner also stated that amending the claims (i.e., by adding the definition for the term 'entity') in a Response to the Final Office action would result in an Advisory Action, because of the further searching that would need to be performed by the Examiner. Accordingly, in order to expedite prosecution, Applicants have filed an RCE herewith, rather than merely responding to the Final Office action. It is Applicants' understanding that when the Examiner asserted that further searching would be required for the Examiner to opine on the amended claims (i.e., the claims amended to include the definition of 'entity'), that the Examiner believed that the amended claims were patentable over Doktor and Kelley (alone or in combination). In view of the above remarks, and the following remarks, reconsideration and withdrawal of the outstanding rejections are respectfully requested.

1. Discussion of Claims 1-30

Independent claim 1 includes the feature of "multiple entity records storing data indicating relationships between said entities, and each said relationship being associated with a historical period of

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validity". This enables the retaining of historical information representative of a business organisation at any point in time.

Kelley describes a system using a distributed architecture with many sub-systems and servers to perform specific tasks related to managing meter reading data. In particular, Kelley states the temporal solution of its application is for 'raw and estimated data values', i.e., transaction data (see Kelley, column 49, lines 20-25). Kelley does not teach or suggest a temporal solution for a entities, with an entity being defined in the present claims as "an identifiable thing within a business or other undertaking to which information resulting from a transaction, measurement or other such assignment (i.e., resulting transaction data) can be related".

Although Kelley describes "an automated meter reading system server that offers a large-scale system solution to address the metering data management needs of the entities involved in energy distribution", i.e., the entities who provide and distribute meter readings service and electricity supply, Kelley does not describe relationships between these entities, but merely relationships between meter types and associated data, i.e., meter rates, which are transaction data. Transaction data is defined in Applicants' specification as "data items (values) relating to (business) transactions. A data item represents an individual value." (See Applicants' specification, page 13, lines 8-9.)

Kelley's 'relational data model' is different than the 'relationships between entities' of Applicants' invention, because Kelley's 'relational data model' refers to a linking between meter type and meter rate (e.g., See Kelley, column 55, table 3). The MeterId(1) and RateId(11) of Kelley are stored in the same tuple(row) and have a valid period associated with them. This merely shows that the MeterId(1) is associated with the RateId(2) over a certain period of time. A RateId is merely information (a data item) resulting from a business transaction, i.e., a resultant rate decided through a contract between a customer and a supplier. Therefore, the RateId is merely transaction data. The RateId does not define the business organisation, but

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merely points to a number that can be used to calculate the resultant bill. In other words, the RateId is NOT an entity.

The relationship between Meter type and Meter rate does not represent the state of a business entity (e.g., organisation) over a certain period of time, but rather merely the period over which a business transaction would be valid, i.e., a specific customer's meter type (MeterId(1)) was using a specified rate available from a supplier (RateId(11)), over this period of time. Thus, Kelley merely discusses that transaction data can have a period of validity. Kelley does NOT suggest that relationships between entities can have a period of validity (e.g., 'Shell Helix' belonging to the product family 'Shell branded products' during a period of validity).

It would not have been obvious to combine the teachings of Doktor and Kelley to provide a system wherein relationships between entities have a period of validity, because neither Doktor nor Kelley discuss the use of periods of validity associated with entities. As discussed above, Kelley merely shows that a period of validity can be associated with a transaction. Doktor merely shows that a set of relationships can be expanded during the life of a database system without reprogramming. Neither Kelley nor Doktor, alone or in combination, try to solve the same problem presented in Applicants' specification (i.e., the inability to access data over a period of time that includes a change in the business organisation). For example, in Kelley, if one of the manufacturers of the meter types were to no longer exist, it would not be possible to still extract data in order to obtain information overlapping the time before and after the business organisation change. The only information that could be extracted would be in separate stages, i.e. the stage of extracting information for meter rates for meter types of the old manufacturer before the change, and then the stage of extracting information for meter rates for meter types of the new manufacturer after the change. Therefore, there would be a discrepancy between the 'logical' data model of the data warehouse and its actual physical realisation (see Applicants' specification, page 5, lines 5-6). Also, there would be high maintenance costs

involved to update the system as discussed on page 5 lines 7 – 12 of Applicants' specification, if the system of Kelley were used.

Based at least on the Remarks set forth above, Applicants respectfully request that the 35 U.S.C. §103(a) rejection of independent claim **1** be reconsidered and withdrawn. Claims **2-30** depend from and add additional features to claim **1**. Accordingly, Applicants assert that claims **2-30** are patentable for at least the reasons discussed above with regards to claim **1**. Further, Applicants assert that these claims are also patentable for the unique and unobvious features that they add, many of which were discussed in the Response to the second Office Action (issued April 11, 2002).

2.   Discussion of claim 47

Claim **47** claims a data storage device storing a data structure that includes features similar to those discussed above with respect to claim **1**. For at least the reasons discussed above with respect to claim **1**, Applications respectfully request that the 35 U.S.C. § 103(a) rejection of claim **47** be reconsidered and withdrawn.

3.   Discussion of claims 48-49

Claim **48** claims a data processing system including the feature of entity records that comprise a hierarchical structure (as claimed in claim **11**). Applicants have amended claim **48** to define 'entity' in the same manner it was defined in claim **1**, discussed above. In addition to the arguments already raised in Applicants' Response to the second Office Action (issued April 11, 2002), Applicants assert that Doktor does not teach or suggest a first entity record that relates to a specific entity, and a second entity record that relates to a more generic entity encompassing the specific entity. Rather, Doktor merely discloses two pieces of

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data, 'a first piece of real data' and 'a second piece of real data'. These two pieces of data are distinct and separate data, as opposed to a specific and generic piece of data wherein the generic encompasses the specific thus forming a hierarchy, and are merely linked by the use of pointers in a threaded list. Kelley also does not disclose or imply this hierarchical arrangement, through which a processor may traverse. For at least these reasons, Applicants respectfully request that the 35 U.S.C. § 103(a) rejection of claim **48**, and its dependent claim **49**, be reconsidered and withdrawn.

4. Discussion of Claim 83

Further to the discussion above, neither Kelley nor Doktor disclose or imply a system wherein both a data model, and structures that are instances of that data model, are time variant as claimed in claim **83**. For example, the data model as shown in Applicants' Figure 7 defines a reference data model and so defines classes of business entities and their relationships. Boxes 71 – 74 of Fig 7 hold the classes of business entities, i.e. classes of business entities are defined using metadata during the initialisation process (see Applicants' specification, page 22, line 10 – page 25, line 19). Boxes 75 – 77 hold the relationships between these classes of business entities and so give a time variant data model. Also, in conjunction with this, the classes of business entities are further defined as an instance of the data model within the reference data elements, as shown in Figure 8a and described on page 18, lines 4 – 7. For example, the brand manager of the data model may be defined as Paul Bishop in the reference data element of Figure 8a.

Kelley merely shows that a period of validity can be associated with a transaction and Doktor merely shows that a set of entities and relationships can be expanded during the life of a database system without reprogramming.

For at least these reasons, Applicants respectfully request that the 35 U.S.C. § 103(a) rejection of claim **83** be reconsidered and withdrawn.

5. Discussion of Claim 84

Further to the discussion above for Claim **48**, neither Doktor nor Kelley discuss or imply arrangements to change the hierarchical levels being traversed until a point where the higher level entity dimensions encompass all the necessary operation records relating to a query. For at least these reasons, and the reasons discussed above, Applicants respectfully request that the 35 U.S.C. § 103(a) rejection of claim **84** be reconsidered and withdrawn.

Conclusion

In light of the above, it is respectfully submitted that all of the claims now pending in the subject patent application should be allowable. Reconsideration and allowance of all claims is, therefore, respectfully requested. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting issuance of a patent.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: <u>February 21, 2003</u>

By: _____
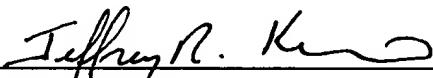
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